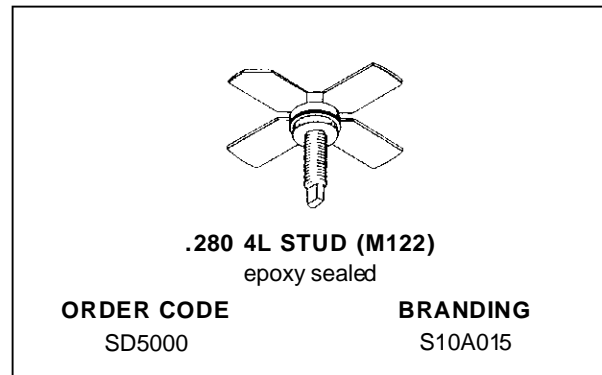


## RF & MICROWAVE TRANSISTORS GENERAL PURPOSE LINEAR APPLICATIONS

PRELIMINARY DATA

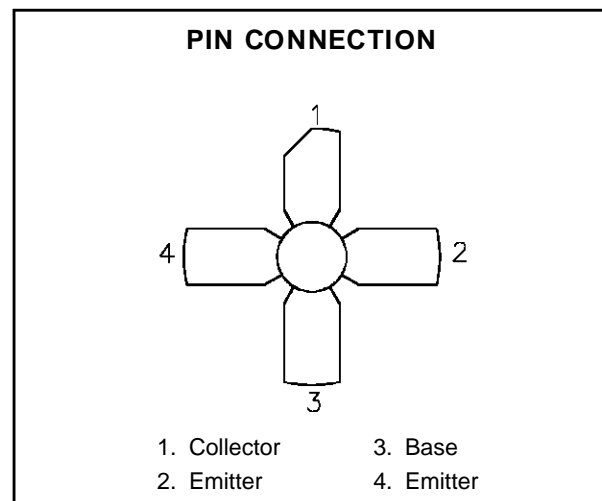
- GOLD METALLIZATION
- EMITTER SITE BALLASTING
- INTERNAL INPUT MATCHING
- OVERLAY GEOMETRY
- METAL/CERAMIC PACKAGE
- COMMON EMITTER CONFIGURATION
- $P_{OUT} = 1.5 \text{ W MIN. WITH } 9.5 \text{ dB GAIN}$


**DESCRIPTION**

The SD5000 is a NPN Silicon Transistor designed for high gain linear performance at 1000 MHz.

This part uses gold metallized die and polysilicon site ballasting to achieve high reliability and ruggedness.

The SD5000 can be used for applications such as Telecommunications, Radar, ECM, Space and other commercial and military systems.


**ABSOLUTE MAXIMUM RATINGS** ( $T_{case} = 25^{\circ}\text{C}$ )

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage	50	V
$V_{CES}$	Collector-Emitter Voltage	50	V
$V_{EBO}$	Emitter-Base Voltage	3.5	V
$I_C$	Device Current	1.0	A
$P_{DISS}$	Power Dissipation	7.0	W
$T_J$	Junction Temperature	+200	$^{\circ}\text{C}$
$T_{STG}$	Storage Temperature	- 65 to +150	$^{\circ}\text{C}$

**THERMAL DATA**

$R_{TH(j-c)}$	Junction-Case Thermal Resistance	25	$^{\circ}\text{C/W}$
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## SD5000

### ELECTRICAL SPECIFICATIONS ( $T_{\text{case}} = 25^{\circ}\text{C}$ )

#### STATIC

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
$BV_{\text{CBO}}$	$I_{\text{C}} = 10\text{mA}$	50	—	—	V
$BV_{\text{EBO}}$	$I_{\text{E}} = 5\text{mA}$	3.5	—	—	V
$BV_{\text{CES}}$	$I_{\text{C}} = 10\text{mA}$	50	—	—	V
$BV_{\text{CEO}}$	$I_{\text{C}} = 5\text{mA}$	23	—	—	V
$I_{\text{CBO}}$	$V_{\text{CB}} = 28\text{V}$	—	0.2	—	mA
$h_{\text{FE}}$	$V_{\text{CE}} = 5\text{V}$ $I_{\text{C}} = 100\text{mA}$	18	—	200	—

#### DYNAMIC

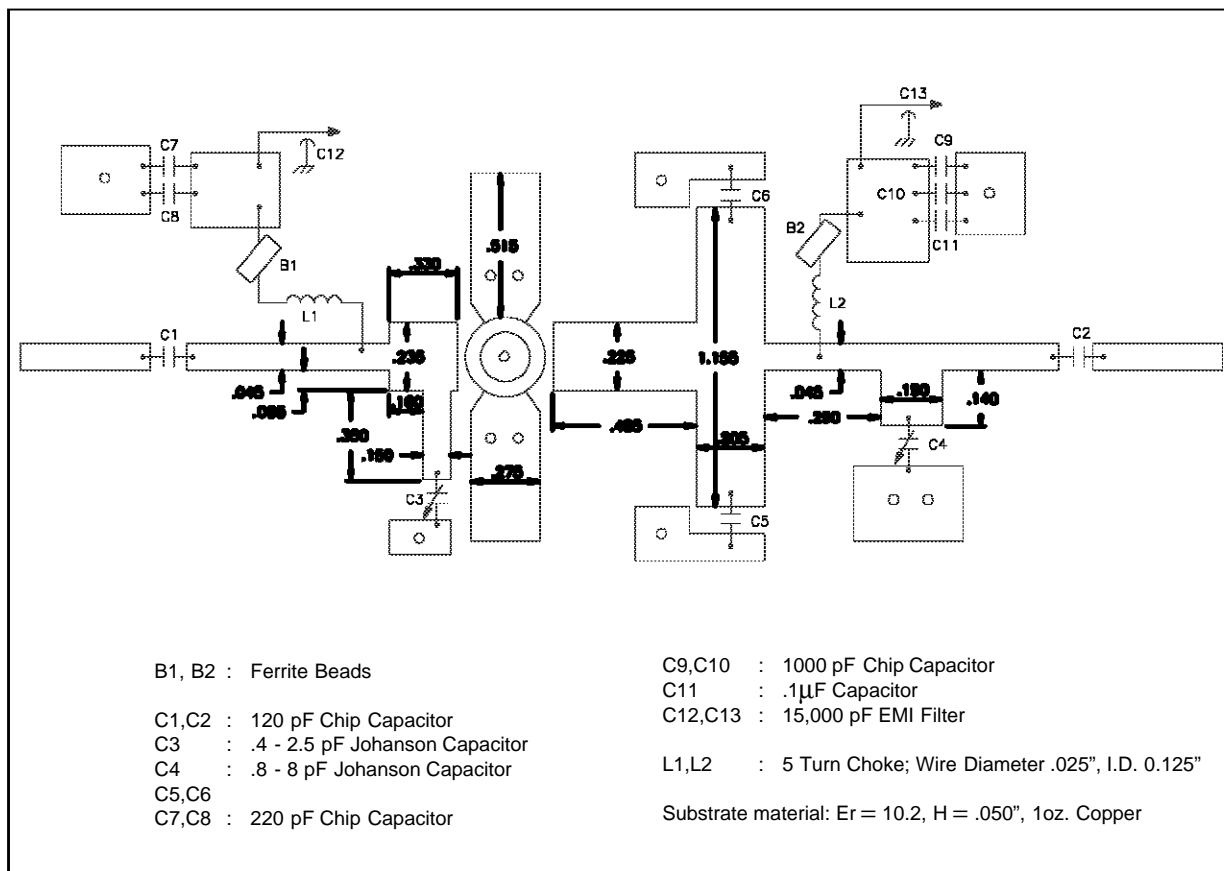
Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
$P_{\text{OUT 1dB}}$	$f = 1\text{ GHz}$ $V_{\text{CC}} = 20\text{ V}$ $I_{\text{C}} = 220\text{ mA}$	1.5	—	—	W
$G_{\text{P}}$	$f = 1\text{ GHz}$ $V_{\text{CC}} = 20\text{ V}$ $I_{\text{C}} = 220\text{ mA}$	9.5	—	—	dB
VSWR	$f = 1\text{ GHz}$ $V_{\text{CC}} = 20\text{ V}$ $I_{\text{C}} = 220\text{ mA}$	—	—	25:1	—
$C_{\text{OB}}$	$f = 1\text{ MHz}$ $V_{\text{CB}} = 20\text{ V}$	—	—	4.0	pF

:

## IMPEDANCE DATA

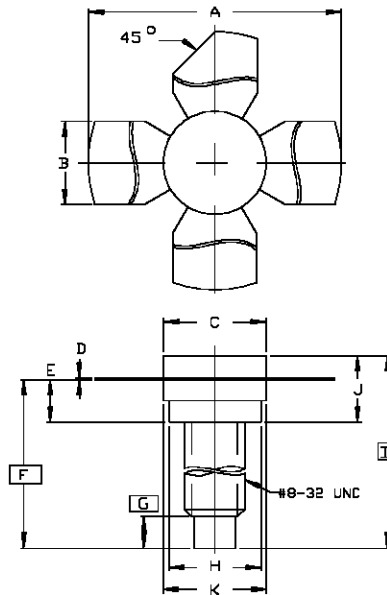
FREQ.	$Z_{IN} (\Omega)$	$Z_{CL} (\Omega)$
1000 MHz	$4.0 + j 3.3$	$20.8 + j 33.3$

## TEST CIRCUIT



PACKAGE MECHANICAL DATA

Ref.: Dwg. No. 12-0122



SGS-THOMSON MICROELECTRONICS		
	MINIMUM Inches/mm	MAXIMUM Inches/mm
A	1.010/25,65	1.055/26,80
B	.220/5,59	.230/5,84
C	.270/6,86	.285/7,24
D	.003/0,08	.007/0,18
E	.117/2,97	.137/3,48
F	.572/14,53	
G	.130/3,30	
H	.245/6,22	.255/6,48
I	.640/16,26	
J	.175/4,45	.217/5,51
K	.275/6,99	.285/7,24

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